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**BEFORE THE
SURFACE TRANSPORTATION BOARD**

ARKANSAS ELECTRIC COOPERATIVE)
CORPORATION – PETITION FOR)
DECLARATORY ORDER)

Finance Docket No. 35305

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**REPLY EVIDENCE AND ARGUMENT
OF WESTERN COAL TRAFFIC LEAGUE
AND CONCERNED CAPTIVE COAL SHIPPERS**

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**BEFORE THE
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| <hr/> ARKANSAS ELECTRIC COOPERATIVE CORPORATION – PETITION FOR DECLARATORY ORDER <hr/> |))))) | Finance Docket No. 35305 |
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**REPLY EVIDENCE AND ARGUMENT
OF WESTERN COAL TRAFFIC LEAGUE
AND CONCERNED CAPTIVE COAL SHIPPERS**

The Western Coal Traffic League and Concerned Captive Coal Shippers
(collectively “Coal Shippers”) present the following reply evidence and argument.

BACKGROUND AND SUMMARY

In their Opening Evidence and Argument (“Coal Shippers Op.” or “Opening Evidence”), Coal Shippers demonstrated that BNSF Railway Company’s (“BNSF”) proposed promulgation of the Coal Dust Tariff Items¹ constituted an unreasonable practice for a number of inter-related reasons: the proposed Tariff Items are premised on junk science (*id.* at 19-33), the proposed Tariff Items would place manifestly unnecessary and unreasonable burdens on coal shippers (*id.* at 34-48), and the proposed Tariff Items contain no enforcement provisions,

¹ BNSF Price List 6041-B, Items 100 and 101 (collectively “Coal Dust Tariff Items”).

making it impossible for the Board to judge the Tariff Items in a meaningful fashion. *Id.* at 48-50.

Coal Shippers' concerns are widespread. Eight other shippers, or associations of shippers, presented opening submissions. None of these shippers appears here in support of BNSF's proposed Tariff Items. *See* Arkansas Electric Cooperative Corporation's Opening Evidence and Argument at 1-3, 15-21; Opening Evidence of Ameren Energy Fuels and Services Company at 11; Opening Evidence and Argument of Texas Municipal Power Agency at 2-6; Initial Comments of American Public Power Association, Edison Electric Institute, and National Rural Electric Cooperative Association at 6-8; Opening Statement of the National Coal Transportation Association at 10-13; Opening Statement of TUCO, Inc. at 3-6.

Three railroads filed opening submissions. BNSF and Union Pacific Railroad Company ("UP") argue that the Board should approve the Coal Dust Tariff Items.² Each posits a common story up to a point. Both railroads claim that the May 2005 derailments on the Joint Line were caused by unexpected coal dust build-up, not faulty maintenance practices;³ both railroads claim that they cannot continue to address track maintenance on Powder River Basin ("PRB") coal lines using current maintenance practices because continuation of these practices threatens the security of the current coal

² *See* BNSF Railway Company's Opening Evidence and Argument ("BNSF Op.") at 1; Opening Evidence and Argument of Union Pacific Railroad Company ("UP Op.") at 1.

³ BNSF Op. at 10 & Verified Statement ("V.S.") of Gregory C. Fox at 5-6; UP Op. at 5 & Connell V.S. at 9, 11.

supply chain;⁴ both railroads claim that BNSF's Coal Dust Tariff Items are supported by sound science;⁵ and both railroads claim that governing law requires that coal shippers take actions "to keep their coal in the loaded railcars."⁶

However, BNSF and UP part company concerning BNSF's enforcement of the Coal Dust Tariff Items. BNSF maintains that it has right to force BNSF shippers to pay undisclosed financial penalties, or to unilaterally stop service to BNSF shippers, if they fail to comply with the Coal Dust Tariff Items. BNSF Op. at 26-27. BNSF also maintains that it has the right to force UP, and UP coal shippers, to comply with the Coal Dust Tariff Items because it has published corresponding provisions as operating rules under the Joint Line Agreement. *Id.* at 26.

UP states that if BNSF attempts to enforce the Coal Dust Tariff Items on UP, or UP coal shippers, UP will immediately take actions to prevent BNSF from doing so. UP Op. at 19-20. Thus, UP's position appears to be that UP supports the Coal Dust Tariff Items so long as they are not applied to UP, or to UP coal shippers using the Joint Line. For its part, Norfolk Southern Railway Company ("NS") simply asks the Board not to set any precedents in this proceeding that would apply to NS. *See Opening Comments of Norfolk Southern Railway Company ("NS Op.")* at 1, 4.

For the most part, the points BNSF attempts to make in defense of its Coal Dust Tariff Items, and which UP parrots in its opening filing, are points that BNSF made

⁴ BNSF Op. at 21-22; UP Op. at 7-10.

⁵ BNSF Op. at 24-25; UP Op. at 14-15.

⁶ BNSF Op. at 5; UP Op. at 10-11 & Glass V.S. at 5-6).

in its initial filings in this case. Coal Shippers fully addressed these contentions in their Opening Evidence, and will not repeat that exhaustive presentation here. Instead, Coal Shippers' Reply Evidence focuses principally on new contentions, or new asserted facts, BNSF and UP presented for the first time in their Opening Evidence, including the following:

- BNSF and UP present witnesses stating publicly that inadequate maintenance was not the cause of the May 2005 Joint Line derailments. BNSF and UP have designated all of the documents they produced in discovery concerning the derailments as confidential or highly confidential documents. Coal Shippers urge the Board to make these documents public. {

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- BNSF and UP present witnesses asserting that current maintenance practices (which include increased ballast undercutting) are not sufficient because these procedures are causing too many slow orders and threatening the supply chain by affecting capacity. In fact, average coal train speeds are at record levels and current maintenance procedures (if properly followed) are more than adequate to protect the coal supply chain.

- BNSF claims that coal dust emitted from the tops of rail cars is the “worst” ballast foulant on the Joint Line and the Black Hills Line, but produces no valid studies documenting for these Lines: (i) the amount of coal dust or other contaminants in the ballast; (ii) the source of the coal dust (*e.g.*, from the bottoms of bottom-dump cars);

(iii) the causal factors for ballast degradation; (iv) whether coal dust (as opposed to other foulants) is driving current ballast maintenance schedules; and (v) the impact that adoption of the Coal Dust Tariff Items would have on its current ballast maintenance schedules and costs.

- BNSF claims that its Integrated Dust Value (“IDV” or “IDV.2”) standards are based on a study of “thousands” of coal trains. BNSF Op. at 6. However, BNSF admits in its Opening Evidence that its range-of-variance study of its E-Samplers – the devices BNSF uses to measure air emissions – was predicated on only “400” specific data points. Sultana V.S. at 7. Even this figure is highly misleading. {

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- BNSF claims that governing legal and industry precedent requires coal shippers to “keep the coal in the loaded cars.” BNSF Op. at 6. In fact, governing legal and industry precedent holds exactly the opposite: for over 100+ years, railroads have been legally required to transport, and have transported, coal in open-top rail cars, without any prior application of surfactants or profiling.

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} Coal Shippers

submit, the Board cannot meaningfully evaluate the reasonableness of the Coal Dust Tariff Items unless and until BNSF publicly discloses its enforcement procedures, since the full impact of these Items remains shrouded in mystery.

ARGUMENT

I.

THE 2005 JOINT LINE DERAILMENTS COULD HAVE BEEN AVOIDED HAD THE LINE BEEN PROPERLY MAINTAINED

BNSF and UP claim that the two derailments on the Joint Line that took place in May of 2005 were not due to poor maintenance of that line prior to the derailments. *See, e.g.*, Fox V.S. at 5 (“Some coal shippers have claimed that the 2005 derailments on the Joint Line were the result of inadequate maintenance. In fact, we had been maintaining the Joint Line and our other lines to a high standard.”); Connell V.S. at 7 (the Joint Line “was in good and serviceable condition” immediately prior to the derailments).

The public statements made by BNSF and UP in this proceeding {

}. Coal Shippers urge the Board to make public BNSF’s and UP’s internal documentation concerning the causes of the 2005 derailments.

Coal Shippers summarized BNSF’s and UP’s contemporaneous, internal documentation of the causes of the 2005 derailments in Appendix B to their Opening

Evidence. Coal Shippers will not repeat that extensive discussion in detail in this Reply filing. {

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For example, in June of 2005, {

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BNSF conducted in its own internal, contemporaneous review of the causes of the two derailments and concluded, {

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} *See, e.g.*, Reply Verified Statement (“Reply V.S.”) of Richard McDonald at 2 (“Deferred maintenance was the principal cause of the two derailments on the Joint Line in May of 2005.”).

II.

PROPERLY FOLLOWING CURRENT MAINTENANCE PRACTICES WILL PERMIT CONTINUED SAFE AND EFFICIENT USE OF THE JOINT LINE AND THE BLACK HILLS LINE

BNSF claims in its Opening submission that it is not realistic to expect that the impact of coal dust on the Joint Line and the Black Hills Line can be dealt with through traditional maintenance techniques, even if performed at an enhanced level. BNSF Op. at 21. BNSF points to two limitations on what can be accomplished by shoulder cleaning, undercutting and vacuuming, namely: (1) “the difficulty of identifying all areas where ballast has been fouled by the accumulation of coal dust;” and (2) “maintenance activities impinge upon rail operations, and the more intensive the maintenance is, the greater the impingement.” BNSF Op. at 21-22; *see also* Sloggett V.S. at 6-9. UP raises similar arguments. UP Op. at 7-9.

Coal Shippers’ witnesses Richard McDonald and Thomas Crowley respond to these claims in their Reply Verified Statements submitted herewith. Mr. McDonald, whose qualifications include a long familiarity with the Joint Line, explains that the carriers’ arguments that the impact of coal dust on the ballast cannot be addressed

through traditional maintenance techniques assume limitations on the available maintenance resources that do not exist. McDonald Reply V.S. at 6. There is no question that greater coal volumes have required greater maintenance, but with the application of greater resources, the work involved remains very manageable.

Mr. McDonald also explains that even if there are locations where accumulated coal dust is not visible to the naked eye, there are sufficient indicators to make responsible maintenance officials aware that a situation requiring more frequent undercutting exists. McDonald Reply V.S. at 3 n.2. Indeed, neither BNSF nor UP supports its arguments about the dangers posed by circumstances where coal dust accumulation may not be visible with the identification of any actual situations where derailments or other problems have occurred. This may well be attributable to the fact that other indications of the need for maintenance activity were sufficient to trigger performance of appropriate maintenance to remedy the problem.

As Mr. McDonald reiterates from his Opening Verified Statement, the cause of the two Joint Line derailments in May of 2005 was extensive deferred maintenance prior to that time, {

}. McDonald Reply V.S. at 1-3. All indications are that BNSF and UP are no longer deferring ballast maintenance, but are performing it on a schedule that is maintaining the ballast in satisfactory condition. This recent performance supports the conclusion that coal dust can be dealt with on a satisfactory basis relying on traditional maintenance techniques. Very simply, the required maintenance activity is being done, so by definition it can be done.

Given the increases in coal volumes, there have naturally been increases in maintenance-of-way (“MOW”) activities, and this is especially true for the Joint Line. Witness Crowley explains that along with the increases in maintenance requirements have come increased revenues sufficient both to cover such costs and to increase contribution above variable costs. His analysis shows that BNSF and UP, on a combined basis, have experienced increases in variable costs for coal traffic between 2005 and 2008 of \$2.11 billion (from \$3.67 billion to \$5.78 billion). *See* Crowley Reply V.S. at 5-7. These cost increases include the costs to maintain the Joint Line, which during these years included an extraordinary level of “catch-up” cost to deal with the extensive deferred maintenance prior to 2005, as well as the costs to maintain their other coal lines.

By comparison, BNSF and UP combined coal revenue grew from \$5.18 billion to \$7.96 billion over this same time period, an increase of \$2.78 billion. *Id.* The combined contribution above variable costs grew from \$1.51 billion in 2005 to \$2.18 billion in 2008, an increase of \$0.67 billion. *Id.* In short, the rates BNSF and UP are earning on their coal traffic are generating ample revenues to fund the increased levels of maintenance that the current high volumes of coal traffic demand. Thus from a financial, as well as from an operational, perspective traditional MOW techniques remain a realistic and responsible means of dealing with the impact of coal dust.

The second limitation on the effectiveness of traditional maintenance raised by BNSF and UP is the impact such maintenance has on track capacity. “Maintenance requires that tracks be taken out of service and that slow orders be issued. The effect is to reduce line-haul capacity.” BNSF Op. at 22. It is, of course, correct that increasing

volumes of traffic will require increased maintenance activity. As Mr. McDonald explains, “[m]aintenance activity always affects line capacity, and it is the railroad’s responsibility to provide sufficient capacity to prevent ongoing maintenance activity from unnecessarily disrupting rail service.” McDonald Reply V.S. at 4.

It appears that line capacity added to the Joint Line during and after 2005 has provided ample aggregate capacity to accommodate current levels of maintenance activity. Mr. McDonald notes that because the added main tracks were built on 25-foot centers, maintenance can be performed on one track without the need for slow orders for adjoining tracks. *Id.* at 5. “The enhanced capacity resulting from the additional main tracks has meant that BNSF has been able to step up undercutting and other maintenance activity such as ballast shoulder cleaning needed to remove coal dust . . . without significantly impacting service to customers.” *Id.*

In fact, as both Mr. Crowley and Mr. McDonald address, BNSF’s and UP’s speeds for coal trains have improved significantly. Based on data reported to the Rail Transportation Advisory Committee (“RETAC”), between 4Q06 and 4Q09, BNSF’s average train speed for coal increased from 18.1 mph to 23.5 mph, an increase of 30 percent. UP’s average coal train speeds increased from 20.9 mph to 26.0 mph, or 24 percent, during the same period. Crowley Reply V.S. at 8-9; *see also* McDonald Reply V.S. at 5-6.

Mr. Crowley also describes improvements in UP’s yard dwell time, another efficiency measure. For UP’s primary PRB coal yard at North Platte, Nebraska, the average dwell time decreased from 28.4 hours (East Yard) and 33.9 hours (West Yard) in

2005 to 26.1 hours (East Yard) and 28.9 hours (West Yard) in 2009. Crowley Reply V.S. at 7. These figures also support the improving performance of coal train operations out of the PRB, even at a time when BNSF and UP have been performing the maintenance procedures described by BNSF and UP engineering witnesses.

It is unknown, given the fall-off in demand for PRB coal, when volumes of traffic on the Joint Line may grow to the point that the overall effect of additional trains and additional maintenance requirements may require adding more track capacity.⁷ For now, however, the capacity appears more than adequate to continue to maintain the Joint Line in a safe and satisfactory condition. *Id.* at 5-6.

III.

BNSF PRESENTS NO CREDIBLE PROOF THAT BALLAST FOULING DUE TO COAL DUST EMISSIONS FROM THE TOPS OF RAIL CARS EXCLUSIVELY DICTATES THE MAINTENANCE SCHEDULES ON THE JOINT LINE AND THE BLACK HILLS LINE

BNSF bases its proposed coal dust emission standards on the assumption that coal dust is the principal contaminant or fouling agent in the ballast on the Joint Line and the Black Hills Line. It also assumes that the principal source of any coal dust in the ballast on these lines is coal dust blowing off the tops of cars, not coal dust released from the bottoms of bottom-dump cars. Finally, BNSF assumes that coal dust is the ballast contaminant that exclusively dictates the maintenance schedules on the Joint Line and the

⁷ EIA's most recent forecast for the Wyoming PRB does not show significant increase in volumes over the next 10 years. McDonald Reply V.S. at 6 n.4.

Black Hills Line. None of these critical assumptions is supported by substantial analytical evidence.

First, as Coal Shippers explained in their Opening Evidence, there are several other well-recognized ballast contaminants in addition to coal dust, including naturally occurring dust, breakdown of ballast and concrete ties due to mechanical forces, brake shoe dust, diesel soot and traction sand. Coal Shippers Op. at 19-22. One of the exhibits submitted by BNSF's Witness VanHook notes that {

}

VanHook V.S., Ex. 14 at 12. In their Opening Evidence, Coal Shippers cited {

} Coal Shippers Op. at 21-23. BNSF does not present any documented analysis of the make-up of ballast contaminants for its PRB lines or the Black Hills Line in its Opening Evidence. *See Viz Reply V.S.* at 13-14.

Though not quantifying the amount or percentage of coal dust in its ballast, BNSF claims repeatedly that coal dust is the "worst" ballast fouling agent on the Joint Line and the Black Hills Line. *See BNSF Op.* at 8, 12. BNSF's claims here are based on laboratory studies conducted by one of its witnesses, Erol Tutumluer. Dr. Tutumluer concluded that at high concentration levels, "coal dust is one of the worst fouling agents when compared to mineral filler produced from aggregate breakdown and the fine-grained cohesive subgrade soils." Tutumluer V.S. at 1. Dr. Tutumluer bases his conclusions on a laboratory analysis of four buckets of coal dust collected from a single

point on the Joint Line (MP62.4) by BNSF (but not any fouled ballast itself).⁸ As Dr. Viz explains, Dr. Tutumluer's failure to follow accepted sampling procedures raises substantial doubts concerning the validity of his analysis of the sampled coal dust. Viz Reply V.S. at 11-14.

Moreover, even if Dr. Tutumluer had properly obtained a sample at MP62.4, and his analysis of the sample had shown that coal dust was the worst of the three fouling agents he chose to subject to laboratory testing, the significance of this conclusion is greatly attenuated without a demonstration of the actual amount of coal dust and other ballast contaminants in the ballast on the Joint Line and Black Hills Line, or the rates at which coal dust and the other contaminants accumulate.

Dr. Tutumluer's laboratory experiments shed no light on these critical questions. Dr. Tutumluer himself admits that his laboratory studies are just that – laboratory studies – that do not necessarily reflect “field conditions” – and that “further studies and different methods of investigation are needed to fully understand ballast fouling”:

It is still difficult to make unique conclusions on ballast fouling because of the differences between laboratory and field conditions and difficulties in sample preparation process. This study is a first step of trying to better understand fouling and its effect on ballast strength and stability. Further studies and different methods of investigation are needed to fully understand ballast fouling.

Tutumluer V.S., Exhibit 4 at 101.

⁸ The ballast materials that Dr. Tutumluer used for testing were not taken from the Joint Line ballast, but were described as “granite aggregate commonly used in the Joint Line” for ballast. Tutumluer V.S. at 8.

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} To date, BNSF has not performed any comprehensive study of the amount of coal dust and other contaminants in the ballast of the involved lines or the rates at which coal dust and other contaminants are accumulating.

Second, BNSF provides no credible demonstration supporting its assumption that the coal dust blowing off the tops of railcars is the principal source of coal dust making its way into the ballast. As Coal Shippers observed in their Opening Evidence, the logical source for coal in the ballast, if any, is coal dropping out of the bottom of bottom-dump cars. Coal Shippers Op. at 23. BNSF claims that its studies of “several cars” equipped with devices to capture the amount of coal coming out of the bottoms of bottom-dump cars demonstrate that these cars “lost about 12 pounds per 100 miles per car per trip,” which is significantly less than the amounts of coal BNSF

estimated, using lasers, that were emitted from the tops of coal cars. VanHook V.S. at

11. BNSF's asserted demonstration is fatally flawed. {

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See Coal Shippers Op. at 24.

Third, while BNSF has presented anecdotal evidence to the effect that coal dust build-up on portions of the Joint Line and Black Hills Line is driving BNSF's ballast maintenance schedules (including its undercutting schedules), BNSF does not appear to have engaged in any properly formulated, or executed, studies or analyses that actually show that coal dust fouling, as opposed to other factors (*e.g.*, the amount of traffic and other causes of ballast fouling), is driving its maintenance schedules on the Joint Line and the Black Hills Line.

Coal Shippers continue to request that before permitting BNSF to promulgate any coal dust emission rules, the Board require BNSF to demonstrate, using sound science, the amount and source of coal dust and other contaminants that are in the ballast on the involved lines, whether this distribution is uniform, and whether achievable reductions in coal dust emissions from the tops of rail cars will realistically reduce the time and costs to address ballast maintenance, considering the impact and rate of accumulation of ballast breakdown and other contaminants.

IV.

BNSF'S IDV.2 STANDARDS ARE BASED ON JUNK SCIENCE

Coal Shippers demonstrated in their Opening Evidence that BNSF's proposed IDV.2 emission standards were based on junk science for many reasons, including the following: BNSF's E-Samplers are not measuring coal dust in the ballast; the E-Samplers are not measuring "coal dust" but all air emissions captured by the samplers; the E-Samplers are located at different distances from the track, which skews obtaining comparable readings from the devices; there is no evidence that any of the readings from the E-Samplers are accurate because there is no evidence that BNSF calibrates the E-Samplers against known reference methods; the E-Sampler output is manipulated to produce "IDV.2" train values using a black box program that BNSF has refused to produce in this proceeding; and the statistical analysis that BNSF concocted to address the "variability" in E-Sampler readings is fatally flawed for several reasons, including its attempted use of a linear regression analysis where each item of the pairs of data being analyzed (side-by-side readings from two E-Samplers) contains measurement errors. *See Viz V.S. at 3-19; Andrew V.S. at 2-6, 10-12.*

In its Opening Evidence, BNSF witnesses provide only a cursory description of how BNSF developed the IDV.2 standards. These descriptions do not address in any meaningful manner the fact that its IDV.2 standards are totally arbitrary. Instead, BNSF continually claims that its IDV.2 standards should be accepted because they are based on its collection of data from "thousands of trains." BNSF Op. at 6; *see also Sultana V.S. at 6* ("SWA had made IDV calculations for over 10,000 trains"). Of

course, the fact that data is collected from “thousands of trains” is of no practical value where, as here, there is no basis for saying the data is accurate, nor measuring what BNSF claims it is attempting to measure, coal dust in the ballast.

Similarly, BNSF asserts that it based its study of the “variation” of E-Samplers using “400 data points” collected from side-by-side testing of two E-Samplers – *i.e.*, putting the two samplers physically side-by-side to measure the same air emissions and comparing the results produced by each sampler. Sultana V.S. at 7. Not only is BNSF’s variation analysis flawed for all of the reasons set forth in Coal Shippers’ Opening Evidence, it suffers from an additional disqualifying error discussed in Dr. Viz’s Reply Verified Statement: most of the “400 data points” are not suitable for BNSF’s intended purpose – measuring variability of the E-Sampler results in the field. Viz Reply V.S. at 5-6.⁹

As Dr. Viz explains, {

} *Id.* Dr.

⁹ As Dr. Viz explains in his Reply Verified Statement, BNSF produced an electronic spreadsheet in discovery in this matter (“Threshold Performance Standard 071001.xls”) than appears to be the overall data record for the “400 data points” referenced by Mr. Sultana. Viz Reply V.S. at 5. {

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Viz concludes that the “paucity of useable data” provides an additional ground to support the conclusion that BNSF’s variability study is “wholly inadequate and not defensible.” *Id.* at 8.

Thus, even if the variability data set being analyzed was accurately measuring coal dust emissions in the ballast (which it does not) and was analyzed using correct statistical analyses (which it was not), BNSF simply did not collect enough data to draw any meaningful conclusions concerning the variability of its E-Samplers, and certainly not enough to support the IDV.2 standards set forth in the Coal Dust Tariff Items. *Id.*

BNSF claims that its E-Samplers act like a “traffic cop.” BNSF Op. at 24. Coal Shippers expect that if a BNSF executive received a traffic ticket, or had his driving privileges revoked, because a radar gun provided inaccurate results, that executive would claim that his legal rights had been infringed. However, in this case, BNSF claims that its clearly faulty E-Sampler/IDV.2 procedures should not be rejected “simply because they do not meet some illusory ideal of accuracy.” *Id.* at 25. BNSF should be held to its own traffic cop standard, and not be permitted to adopt and enforce an emission methodology that clearly meets no accepted standard of accuracy.

V.

THERE ARE NO PROVEN COMPLIANCE METHODS

BNSF describes its challenged rules as establishing “performance-based standards in that they measure whether individual coal trains emit quantities of dust that

exceed or fall below a specified dust emissions level.” BNSF Op. at 22-23. It distinguishes this approach from an activity-based approach, such as requiring covering of cars, or spraying of cars and suggests that the performance approach is better because it “give[s] shippers the leeway to determine on an individual basis the method of complying with the standard that best suits each shipper’s needs.” *Id.* at 23. However, as Coal Shippers pointed out in their Opening Evidence, this approach also suffers from a significant defect based on the operative facts in this matter, namely, that there are no practical methods of compliance a shipper can choose that will assure that its trains will comply with the standard. Coal Shippers Op. at 47-48.

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}¹⁰ Although UP says it is currently evaluating covers as an alternative method, it is clear that such evaluation is at a very early stage. “We are also working with two other vendors on the development of car covers, and have discussed testing the covers in unit train service later this year.” Glass V.S. at 10. The only other method BNSF suggests, spraying loaded cars with surfactants, {

¹⁰ {

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} . See, e.g., Coal Shippers Op.

at 47 n.22.¹¹ In short, BNSF's and UP's Opening Evidence confirms that there are no assured methods for coal shippers to achieve compliance with BNSF's IDV.2 coal dust standard. The same is true of BNSF's loaded coal car profiling requirements.

BNSF describes the profile as an "idealized load profile which, if achieved during the loading process, would reduce the impact of wind and air currents on the loaded coal and thereby reduce coal dust emissions during transit." BNSF Op. at 13. Yet even though the PRB mines have adopted modified loading chutes to conform with its rules, BNSF acknowledges that "additional [unspecified] care needs to be taken in the loading process to achieve the load profile" and "[e]ven if coal cars are loaded to the ideal load profile, substantial emissions still occur." *Id.* at 13-14.

VI.

BNSF'S CLAIM THAT THE LAW MAKES COAL SHIPPERS RESPONSIBLE FOR COAL DUST EMISSIONS OCCURING DURING RAILROAD OPERATIONS IS WRONG

BNSF asserts that "[l]ong-established judicial and agency decisions compel the conclusion that BNSF can regulate coal dust emissions from trains operating over its lines." BNSF Op. at 16. However, BNSF cannot, and does not, back up this assertion

¹¹ BNSF claims that "one promising way to ensure compliance is to apply a surfactant to the top of a loaded car," and says that based on running "several instrumented trains," it "found that the use of surfactants, particularly with properly groomed coal cars, can substantially eliminate coal dust emissions." BNSF Op. at 15. {

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with any pertinent judicial or agency decisions. BNSF does not cite a single judicial or agency decision addressing coal dust emissions from rail cars, and appears to have deliberately chosen not to inform the Board of the leading judicial precedent that does address coal dust emissions – Judge Fox’s decision entered on September 12, 2007 in the *Entergy Case*.¹²

In the *Entergy Case*, UP filed a court complaint alleging, *inter alia*, that a coal shipper, Entergy, was responsible for causing coal dust emissions from UP trains moving on the Joint Line, and that, in so doing, Entergy was unlawfully “trespass[ing] on UP’s property and unlawfully committing a “nuisance” on UP’s property.” *See id.*, UP’s First Amended Complaint, Counts 4 and 5 (dated May 30, 2007).¹³ Entergy moved to dismiss UP’s trespass and nuisance claims on grounds that Entergy was not responsible for coal dust emissions occurring while trains carrying its coal were entrusted to UP for delivery.

Entergy’s motion to dismiss was fully briefed, the Court heard oral arguments, and, after carefully considering the matter, Judge Fox summarily granted Entergy’s motion. *See id.*, Sept. 12, 2007 Decision at 1 (“Based on the pleadings, the arguments of counsel, and all other things and matters properly before the court, the court

¹² *Union Pac. R.R. v. Entergy Arkansas, Inc.*, Case No. CV2006-2711 (Circuit Court of Pulasky County, Arkansas, Sixth Division).

¹³ A copy of this Amended Complaint appears in Coal Shippers’ Reply Electronic Workpapers as Exhibit A to “Entergy Motion to Dismiss (Trespass-Nuisance).pdf.”

finds that [Entergy's] motion [to dismiss UP's trespass and nuisance claims] should be and hereby is granted."¹⁴

BNSF claims that its legal assertions are supported by two very old ICC decisions involving leakage of grain from boxcars, citing *Chicago Bd. of Trade v. Abilene & S. Ry.*, 220 I.C.C. 753, 761 (1937) ("*Abilene*") (holding that rail shippers had to bear the cost of installation of carrier-supplied grain car doors on boxcars to prevent leakage) and *In re W. Trunk Line Rules, Regulations, and Exceptions to Classifications*, 34 I.C.C. 554, 578 (1915) (approving a tariff rule calling for shippers to bear the expense of lining carrier-supplied box cars "to prevent loss by leakage" of flaxseed) ("*Trunk Line Rules*"). BNSF Op. at 18.

The ICC's leakage case jurisprudence, as manifested in cases like *Abilene* and *Trunk Line Rules*, is inapposite here, because the cases involved leakage protections sought by the shippers, not protections unilaterally imposed by the carriers. As the ICC itself explained, the rulings in its leakage cases stand for two propositions: first, a rail carrier "must furnish equipment that is safe for transportation."¹⁵ Second, if a shipper desired additional "special safeguards" (*id.*) to help prevent grain from leaking out of a

¹⁴ Copies of public versions of the parties' motion papers (including UP's First Amended Complaint), the transcript of argument, and the court's order are appended in Coal Shippers' Reply Electronic Workpapers as: "Entergy Motion to Dismiss (Trespass-Nuisance).pdf"; "Entergy Brief (Trespass-Nuisance).pdf"; "UP Opposition to Motion to Dismiss (Trespass and Nuisance).pdf"; "Union Pacific-Entergy 09-05-2007 Transcript.pdf"; and "Order Granting Partial Summary Judgment (Trespass-Nuisance).pdf").

¹⁵ *Furnishing Suitable Cars for Loading Flour and Other Grain Products*, 128 I.C.C. 442, 444 (1927).

carrier-supplied boxcar, the obligation to install these safeguards in the car rested with the shipper:

It is well settled that a common carrier must furnish suitable equipment for safe transportation, and that special safeguards *desired by the shipper* should be furnished by him.

Id., 128 I.C.C. at 444 (emphasis added) (citing cases). There are no ICC or STB decisions involving “leakage” of coal dust from rail cars because coal shippers have not requested transportation in specially treated rail cars that do not “leak.”

BNSF also argues that the Board should permit BNSF to regulate coal dust emissions because BNSF requires that shippers keep their commodities in railcars during transport and because keeping coal in the railcars is necessary for safe railroad operations. *See, e.g.*, VanHook V.S. at 17 (“No shipper of any other commodity is allowed to release their commodity onto BNSF’s rail lines”); Fox V.S. at 7 (adoption of coal dust emission standards is necessary for “safe, efficient and reliable rail operations”). Neither contention is correct.

Coal dust emissions from the tops of railcars do not occur, as Mr. VanHook asserts, because coal “shipper[s] release their commodity onto BNSF’s rail lines.” VanHook V.S. at 17. Instead, if any dust comes off the top of a train, after the train is loaded, it does so while BNSF is operating the train, and results from forces beyond the

control of the shipper – *e.g.*, train speed, train acceleration, trains passing each other, wind speed and other environmental factors. *See Viz Reply V.S. at 8-11.*¹⁶

Nor is regulation of coal dust emissions necessary for “safe, efficient and reliable rail operations,” as Mr. Fox opines. Coal has been moving in open-top cars for over 100 years, and continues to do so today, in a safe and efficient manner, without any limitations placed on dust coming off the tops of the cars, and can continue to do so if railroads properly maintain their lines. *See McDonald V.S at 6; McDonald Reply V.S. at 3-6.*¹⁷

BNSF’s and UP’s citation to loading rules governing other commodities is also inapt.¹⁸ Carriers can adopt reasonable rules governing the safe loading of rail cars and can require shippers to pay to modify railcars to meet shippers’ special needs. The loading rules cited by BNSF and UP governing loading of heavy equipment, scrap metal, and other commodities appear to fall into one or both of these categories. However, what constitutes a reasonable loading rule or practice must be judged on the facts of each particular case,¹⁹ and the loading rules BNSF has promulgated for other commodities are

¹⁶ The type of coal, and how the coal is profiled in a coal car, may impact the amount of coal that is emitted under specified rail operating conditions, but these factors, by themselves, do not cause the coal dusting.

¹⁷ Of course, the burden of proof to show that current loading and operating procedures are unsafe rests with BNSF – a burden it clearly has not met in this case. *See Union Pac. R.R. – Petition for Declaratory Order*, STB Finance Docket No. 35219 (STB served June 11, 2009), at 4-6.

¹⁸ *See Fox V.S. at 7-8 & Exhibits 5-7; Glass V.S. at 5-6.*

¹⁹ *See Coal Shippers Op. at 44-45 (and cases cited therein).*

not necessarily applicable to coal transportation, which is governed by its own transportation facts and circumstances.

Despite BNSF's attempts to muddy the waters, the governing legal standards are clear here. The common carrier obligation, codified at 49 U.S.C. § 11101(a), requires that rail carriers engaged in regulated common carrier rail service "provide the transportation or service on reasonable request." *Id.* This obligation imposes duties on both shippers and carriers. Shippers are required to load their cars "in a safe manner" for transportation.²⁰ Once loaded, rail carriers are charged, *inter alia*, with transporting the goods in a safe manner²¹ and with maintaining their lines to standards that permit them to do so.²²

Application of current law is also simple, straightforward and supported by over 100 years of industry practice. For well over 100 years, coal shippers have been making requests for common carrier coal transportation service in open-top rail cars and railroads have fulfilled their common carrier obligations by accepting cars tendered for shipment, without first requiring that coal shippers apply surfactants or profile trains. Railroads have not made such demands because 100+ years of experience demonstrates

²⁰ See *Waste Material Dealers Ass'n of Ark. v. Chicago, R.I. & P. Ry.*, 226 I.C.C. 683, 688 (1938) ("It is the right and duty of the railroads to refuse to accept shipments that are not loaded in a safe manner."); *Consignees' Obligation to Unload Rail Cars in Compliance with Carriers' Published Tariffs*, 340 I.C.C. 405, 410 (1972) ("carriers may refuse for shipment articles tendered for transportation, unless in such condition and so prepared for shipment as to render the transportation thereof reasonably safe and practicable").

²¹ See, e.g., 49 U.S.C. § 11706 (making common carriers by rail generally responsible for the safe transportation of the commodities they carry).

²² See *Coal Shippers Op.* at 51.

that coal can be safely loaded and transported without applying surfactants or profiling, and neither BNSF nor UP has submitted credible evidence in this proceeding demonstrating that this is no longer the case.²³

Moreover, to the best of Coal Shippers' knowledge, at no time during the past 100+ years has any federal, state or local agency required application of any surfactants or profiling as a condition precedent for common carrier service, and certainly no such standards exist today concerning coal transportation on the Joint Line or the Black Hills Line.

While BNSF claims it is asking the Board to follow existing precedent in this proceeding, that clearly is not the case. What BNSF is really asking the Board to do is to overturn longstanding legal precedent, and to ignore longstanding industry practice, by permitting BNSF to impose dust emission rules that are not necessary for safe coal transportation but instead are designed and intended solely to shift certain track maintenance costs from BNSF to its coal shippers.²⁴ As demonstrated in Coal Shippers'

²³ A carrier's common carrier obligations to move traffic are shaped by its long history of carriage, as well as the continuing national need for such carriage. *See, e.g., Akron, Canton & Youngstown R.R. v. ICC*, 611 F.2d 1162, 1167 (6th Cir. 1979). Here, coal has always moved in open-top cars (without application of surfactants or profiling) and Congress has made clear that the Board should actively promote and facilitate the transportation of coal by rail. *See* Conf. Report on the Staggers Rail Act of 1980, H.R. Rep. No. 96-1430 (1980) at 80 ("The conferees intend that [the Rail Transportation] policy include the encouragement and promotion of the transportation of coal by rail in accordance with the objective of energy independence.").

²⁴ UP claims that railroads cannot enter into arrangements with coal shippers and coal mines calling for the application of surfactants or train profiling while a train is being loaded. UP Op. at 12. This is clearly not the case. Railroads are free to enter into contract arrangements with coal shippers and coal mines that reflect a fair, agreed-upon

Opening and Reply Evidence, BNSF's attempt to do so constitutes an unreasonable practice.²⁵

VII.

THE BOARD CANNOT MEANINGFULLY REVIEW THE REASONABLENESS OF THE COAL DUST TARIFF ITEMS UNLESS AND UNTIL BNSF PUBLISHES ITS PROPOSED ENFORCEMENT MECHANISM(S)

In their Opening Evidence, Coal Shippers demonstrated that BNSF has not identified what the consequences would be if a shipper fails to comply with its proposed coal dust rules. Without knowledge of the consequences that would befall a shipper who fails to comply, the Board cannot make a reasoned decision as to the reasonableness of BNSF's rules. Coal Shippers Op. at 48-50.

Predictably, BNSF has claimed that since it "has not adopted any particular measures to ensure compliance with its coal dust emissions standards," it is "premature" for the Board to give any consideration to what enforcement consequences it might adopt. BNSF Op. at 25. Nevertheless, in a tacit acknowledgement of the relevance and

sharing of the economic costs and benefits of the application of surfactants and profiling. *See McDonald Reply V.S. at 7-8.* Of course, what BNSF and UP really want to do is to publish tariffs that place all of the costs of coal spraying and profiling on coal shippers, while they reap all of the benefits in the form of potentially reduced maintenance costs.

²⁵ BNSF also maintains that in conducting its review of BNSF's Coal Dust Tariff Items, the Board should defer to BNSF's judgment in the same manner that a court defers to the Board's expert judgment in judicial review proceedings. BNSF Op. at 20. Of course, this is not the correct standard because Congress has charged the Board, not BNSF, with the responsibility of determining in the first instance what constitutes an unreasonable practice. *See* 49 U.S.C. § 10702(2); *Pub. Serv. Co. of Colo. v. Burlington N. and Santa Fe Ry.*, STB Docket No. 42057 at 4 (STB served Jan. 19, 2005) (Board is "not the prisoner of the parties' submissions," but rather "the guardian of the general public interest") (internal quotation marks and citations omitted).

importance to this proceeding of the enforcement approach it adopts, BNSF spells out what it describes as “a framework for its likely approach to enforcement.” *Id.*

The elements of BNSF’s “Proposed Framework” include:

1. Enforcement actions would be “set out in separate notices.”
2. Enforcement measures would apply to “inadvertent or intentional non-compliance.”
3. Upon a failure of a shipper’s train to meet the IDV.2 standard, the shipper may be required to execute a “certificate” of its intent to comply.
4. If a shipper has executed a certificate but fails to meet the standard, BNSF may impose a “special handling charge” for non-compliant trains.
5. BNSF may “decline to provide service” if it views a shipper to be willfully non-compliant.

Id. at 26-27.

BNSF’s description of its contemplated enforcement approach does not provide the Board sufficient detail to allow it to assess the reasonableness of the challenged tariff items. For example, there is no description of the terms of the “certificate” that BNSF would “require” a shipper to execute. One must assume that if a shipper failed to execute such a certificate upon being “required” to do so, BNSF might decline to provide service for willful non-compliance, so that the shipper would have little choice in the matter. The “special handling charge” for non-compliant coal trains is not quantified, nor is it clear when it might apply. For example, a shipper might arrange for its cars to be sprayed, but still fail the IDV.2 standard and be subjected to the special

charge, because “the compliance method adopted is ineffective and the standard is not met.” BNSF Op. at 27.

The denial of service element of BNSF’s enforcement “framework” also lacks meaningful definition. Although BNSF presents this option as one limited to instances of willful non-compliance, it seems clear that if BNSF demanded that a shipper execute a certificate agreeing to spray its trains, and the shipper declined to do so, the shipper could be deemed non-compliant and face denial of service. In other words, BNSF intends to enforce an obligation to spray trains with the threat of denial of service.

BNSF does not specifically address in its public filing what its approach would be when a shipper with several trainsets in service has a single train that fails the IDV.2 standard. {

}

Coal Shippers submit that even if the Board were to conclude that BNSF's challenged Tariff Items are otherwise reasonable, it should not allow BNSF to implement them until BNSF defines its enforcement mechanisms. Otherwise, coal shippers and coal producers will effectively be forced into incurring the major costs associated with installing, throughout the PRB, the infrastructure required to spray trains as they are loaded.

BNSF's suggestion that its performance-based standard allows selection of the "most efficient and cost-effective method of coal dust suppression" rings hollow for two reasons. BNSF Op. at 7. First, BNSF rules out the most efficient and cost-effective means of addressing coal dust – *i.e.*, traditional maintenance – by its efforts to force shippers and producers to deal with this maintenance issue. Second, as discussed above, as a practical matter it appears that there is only one option for attempting to satisfy BNSF's demands, and that is spraying surfactants on coal trains. In short, there is no need to await determination of the most effective way to meet BNSF's standard before requiring BNSF to define its enforcement methodology.


As noted in the Coal Shippers' Opening Evidence, principles of judicial economy discourage the type of piecemeal litigation that would result if BNSF were allowed to implement its challenged Tariff Items without first defining its enforcement mechanism. *See* Coal Shippers Op. at 49-50. The Board has the interested parties and all

the other factors relating to this dispute before it in this proceeding. Deferring resolution of this issue may necessitate further otherwise unnecessary litigation.

CONCLUSION


Coal Shippers request that the Board issue declaratory relief in the manner set forth in Coal Shippers' Opening and Reply Evidence.

Respectfully submitted,

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Dated: April 30, 2010

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*Attorneys for Western Coal
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CERTIFICATE OF SERVICE

I hereby certify that this 30th day of April, 2010, I have caused the forgoing to be served via first-class mail, postage prepaid upon counsel for BNSF Railway Company and the Arkansas Electric Cooperative Corporation. I further certify that this 30th day of April, 2010, I have caused redacted, public copies of the forgoing to be served via first-class mail, postage prepaid upon the parties of record to this case.

A handwritten signature in black ink, reading "Andrew B. Kolesar III". The signature is written in a cursive style with a horizontal line underneath.

Andrew B. Kolesar III

REPLY VERIFIED STATEMENT OF RICHARD H. McDONALD

My name is Richard H. McDonald. I previously submitted a verified statement in this proceeding on behalf of the Western Coal Traffic League and the Concerned Captive Coal Shippers ("Coal Shippers"). My prior statement was included with the Coal Shippers' Opening Evidence and Argument filed March 16, 2010. My qualifications, which include a long history of familiarity with the Powder River Basin ("PRB") Joint Line, are set forth therein.

I have read the verified statements by BNSF witnesses Gregory C. Fox, William VanHook and Craig Sloggett and by Union Pacific ("UP") witness David Connell that were submitted with those carriers' Opening Evidence and Argument in this case. The Coal Shippers have asked me respond to these witnesses' testimony to the effect that coal dust poses a risk to safe and efficient rail operations that cannot adequately be dealt with through current track maintenance procedures.

I. Coal Dust Accumulation is Avoided by Regular Application of Sound Maintenance Practices

As a preliminary matter, there is no dispute that coal dust and other ballast fines can interfere with the proper functioning of ballast (distributing loads from the ties to the subgrade and providing drainage for the track structure) if permitted to accumulate over a lengthy period of time. As I noted at pp. 4-5 of my earlier verified statement in this proceeding, this was the situation that had occurred on the Joint Line by early 2005.

Deferred maintenance was the principal cause of the two derailments on the Joint Line in May 2005, and it resulted in the subsequent extraordinary and lengthy program undertaken by BNSF to undercut much of the Joint Line, clean/replace and add new ballast, and clean and replace turnouts and concrete ties.

BNSF Witness Fox states at page 6 of his verified statement that inadequate maintenance did not cause the two derailments in May of 2005 “because our pre-derailment maintenance was not in any way sub-standard.” However, as noted at pp. 5-7 of my earlier verified statement, BNSF’s stated policy, for a line such as the Joint Line that is subject to significant coal dust accumulation, is that undercutting should be performed { }.

Documents produced by BNSF in discovery showed that BNSF had not come close to this undercutting interval for a number of years prior to 2005, and that during the four-year period from 2001-2004 BNSF undercut an average of { } miles of track on the Joint Line – or {

} *Id.* at 7.

In addition, contemporaneous communications within BNSF and between UP and BNSF shortly after the 2005 derailments {

}¹

I also find Mr. Fox's comment that BNSF did not understand the full impact that coal dust has on the track structure (Fox V.S. at 6) to be disingenuous. It has been well-known for many years, among knowledgeable railroad operating and engineering officers, that if coal dust (or for that matter, any other foreign substance) is allowed to accumulate and remain in the ballast, this will clog drainage and lead to unstable track and roadbed. BNSF is not alone in experiencing this situation; other railroads have had similar problems, and have employed ongoing good maintenance practices to prevent the type of problems BNSF experienced in 2005.²

II. Traffic Volume and Type Dictates Maintenance Frequencies and Procedures on All Rail Lines

BNSF's and UP's engineering witnesses state that increased maintenance is "not the solution" to the coal dust problem given the heavy volume of traffic that moves over the Joint Line and other nearby coal lines, and that the best solution is to keep the coal dust inside the cars and out of the ballast. (Fox V.S. at 8; VanHook V.S. at 15;

¹ These communications are described in detail at pp. 2-6 of Appendix B to the Coal Shippers' Opening Evidence and Argument in this proceeding. In addition, the FRA issued numerous citations to BNSF in 2003 and 2004 for failure to maintain the Joint Line properly by allowing fouled ballast to occur. *Id.* at 8-13.

² BNSF's witnesses also assert that accumulated coal dust is not always visible to the naked eye, but can seep down into the ballast where it cannot easily be seen. While this may be true, enough coal dust *is* visible on and near the Joint Line track – not to mention the coal dust that can be seen and felt blowing off passing trains (VanHook V.S. at 5) – to make responsible maintenance officials aware that there is a situation that needs addressing through more frequent undercutting.

Connell V.S. at 1-2.) According to these witnesses, increasing maintenance (undercutting) cycles to deal with coal dust disrupts rail service on these heavily-used lines, and adversely affects line capacity.

Increased traffic volume increases the maintenance needs on any line. This is a simple fact of railroading. Maintenance activity always affects line capacity, and it is the railroad's responsibility to provide sufficient capacity to prevent ongoing maintenance activity from unnecessarily disrupting rail service. When traffic moving over a particular line increases substantially, revenues also increase substantially which means more funds are available to provide the capacity needed to perform adequate maintenance.

The Joint line itself is an example of this. In the years leading up to 2005, the volume of coal traffic moving over the Joint Line increased substantially. BNSF (and UP) certainly were pleased by the increased traffic and the resulting revenues and profits, but they evidently did not want to spend the money needed to keep up with the increasing demand by increasing capacity and maintenance (which requires track time). As of early 2005, most of the Joint Line had two main tracks, with a short section of triple track on Logan Hill (the ruling grade for southbound loaded coal trains, located south of Nacco Jct.). UP's line extending east from Shawnee Jct., WY (where it connects with the Joint Line) also had double track at this point. Thus UP's line had nearly the same capacity as the Joint Line even though it carried only half the traffic. The unavailability of track time on the Joint Line contributed to BNSF's acknowledged failure to perform adequate

inspections and maintenance of the line (*see* Appendix B to the Coal Shippers' Opening Evidence and Argument, at 2.)

Additional capacity was added to the Joint Line during and after 2005, and at present the entire line has three main tracks and the Logan Hill area has four main tracks. The added main tracks were built on 25-foot track centers. This enables maintenance to be performed on one track without the need for slow orders restricting train speeds on the adjacent track. The enhanced capacity resulting from the additional main tracks has meant that BNSF has been able to step up undercutting and other maintenance activity such as ballast shoulder cleaning needed to remove coal dust (as described in its engineering witnesses' testimony) without significantly impacting service to customers.

BNSF and UP enjoyed record coal volumes from the PRB in 2008, originating nearly 25,000 trainloads carrying approximately 375 million tons of coal. According to a posting on UP's website in January 2009, the trains loaded by both railroads in 2008 represented an increase of 4.4% compared to 2007, and "our train velocity and cycle-time performance for coal continue to support increased coal deliveries."³ The most recent performance "dashboard" developed by the Rail Transportation Advisory Committee ("RETAC"), available on the STB's website, confirms that both BNSF's and UP's average coal train speeds have increased steadily

³ See http://www.uprr.com/customers/energy/sprbupdates_2009.shtml. Overall coal volumes from the PRB declined slightly in 2009 due to the economic recession, but the added capacity since 2005 again enabled both railroads to meet the overall demand in 2009 without any significant service problems.

over the past four years. These metrics confirm my understanding that PRB coal transportation service has been better in the past two years than at any time within memory. This is strong evidence that current maintenance procedures (including the increased undercutting frequencies cited by the BNSF and UP engineering witnesses) are adequate to protect the PRB coal supply chain, without disrupting service even at record volume levels.

BNSF and UP further claim that increasing maintenance of their principal coal lines to get rid of accumulated coal dust is not practicable due to a lack of resources. For example, UP witness Connell implies that UP does not have the resources needed to undercut its coal network at the needed frequencies (Connell V.S. at 17-18). However, Mr. Connell assumes that UP would never have more than one undercutting machine and crew available at one time. This is nonsense; UP has several undercutters working at various locations on its system at any given time and can bring an additional undercutter to its coal network as needed, or use a contract undercutter from time to time. It can also use the “maintenance blitz” technique that BNSF has employed on the Joint Line and that the major Eastern railroads employ every year, during which a line (or a track) is essentially closed to traffic for a week or more to facilitate the rapid completion of a maintenance project without disrupting traffic at other times, with additional resources thrown at the area to get the work done. In other words, it is not that UP (or BNSF) cannot perform the additional maintenance needed for their high-density coal lines, but rather that they would prefer not to do so.

It may be that coal volumes out of the PRB will increase substantially in the future (although that seems far from certain with the increased opposition to coal-fired electricity generation⁴), thus necessitating increased undercutting and other maintenance of the track and related structures. If this occurs, capacity may again need to be added to prevent the increased maintenance needs from unreasonably disrupting train operations. With the knowledge gained from their experience in and since 2005 and their continuing investigation of ballast maintenance issues, BNSF and UP should be in a position to deal with future maintenance needs by increasing capacity if needed, in the same manner they (belatedly) dealt with the increased maintenance needs resulting from the PRB coal traffic increases after 2005.

III. The Railroads Have the Ability to Implement Alternative Solutions to Reduce Coal Dust Accumulation and Related Track Maintenance

In its Opening Evidence and Argument, BNSF states that the goal of the tariff item in issue in this case is to eliminate or significantly reduce coal dust emissions from passing trains, while leaving it to the customers (shippers) to determine the best means of compliance with the tariff's dust emission standard. However, it is obvious from BNSF's filing that it believes spraying the surface of the coal with a surfactant after it is loaded into railcars at the mines is the best solution.

To the extent BNSF (and UP) believe spraying the coal at the mine is a better solution to the problem of coal dust accumulation on and along the tracks than

⁴ EIA's most recent forecasts project that Wyoming PRB coal production, which equaled 451.7 million tons in 2008, will not increase significantly over the next ten years. See "EIA Forecast.pdf."

increased undercutting, they have the means to implement that solution by having the mines perform the spraying and reimbursing them for related costs (including the cost of the surfactant). If the railroads are correct, spraying would reduce their maintenance requirements (in particular undercutting frequencies) on the Joint Line and other lines leading out of the PRB, reduce maintenance costs, and increase the operational capacity of these lines. There is no good reason to impose extra obligations (and costs) on coal shippers when the intended net result would be to reduce the railroads' maintenance and operating costs.

VERIFICATION

I, Richard H. McDonald, verify under penalty of perjury that I have read the foregoing Reply Verified Statement and know the contents thereof; and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.


Richard H. McDonald

Executed on: April 21, 2010

BEFORE THE
SURFACE TRANSPORTATION BOARD

FINANCE DOCKET NO. 35305

ARKANSAS ELECTRIC COOPERATIVE CORPORATION –
PETITION FOR A DECLARATORY ORDER

REPLY VERIFIED STATEMENT OF
MARK J. VIZ, Ph.D., P.E.

ON BEHALF OF
WESTERN COAL TRAFFIC LEAGUE
AND
CONCERNED CAPTIVE COAL SHIPPERS

Redacted, Public Version

DATED: APRIL 30, 2010

1. Introduction and summary of conclusions.

- a. My name is Mark J. Viz. I am the same Mark J. Viz who submitted a verified statement in this proceeding on March 16, 2010, on behalf of the Western Coal Traffic League and Concerned Captive Coal Shippers (collectively “Coal Shippers”). In that verified statement I addressed, among other things, BNSF’s assertion that “BNSF’s coal dust emissions standards are supported by scientific and engineering studies and data.”¹ BNSF’s proposed coal dust emissions standards are *not* supported by their scientific and engineering studies and data for the many reasons I set forth in my initial verified statement.
- b. I have been requested by the Coal Shippers to review the verified statements submitted by three BNSF witnesses in BNSF’s opening submission in this proceeding: Charles (Tony) Sultana, a Six Sigma Specialist in BNSF’s Mechanical Department; G. David Emmitt, the President of the consulting firm Simpson Weather Associates (“SWA”); and Erol Tutumluer, a Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign. Each of these individuals addresses the studies and data that BNSF relied upon in developing its proposed coal dust emissions standards. In general, the statements presented by Mr. Sultana, Dr. Emmitt and Dr. Tutumluer do not address in detail the many flaws in BNSF’s studies and data, which I previously explained in detail in my verified statement. Accordingly, I will simply incorporate by reference, and not repeat, the contents of my initial verified statement in this reply statement.
- c. A summary of conclusions presented in this reply verified statement include:
 - i. BNSF’s study of the variation in IDV / IDV.2 calculated from particulate measurements of E-Samplers located side-by-side in the field and in the laboratory is flawed in many respects. The multiple problems with BNSF’s

¹ “BNSF Railway Company’s Reply to Arkansas Electric Cooperative Corporation’s Petition for a Declaratory Order,” p. 7, October 21, 2009 (herein referred to as “2009 Reply”).

data that they used to attempt to study E-Sampler variability provide additional evidence that BNSF's development of its IDV / IDV.2 emissions standard is not based on sound engineering analysis.

- ii. Mr. Sultana's conclusions regarding the identification of factors that cause particulate coal emissions from trains in transit present a misinterpretation of his own study results, are not defensible to a reasonable degree of engineering certainty and even contradict causation studies previously performed by SWA.
- iii. The conclusions presented by Dr. Tutumluer in his opening verified statement are based on work performed on only one sample of ballast from the PRB Joint Line and as such the conclusions stated with respect to the cause of the May 2005 derailments specifically and the performance of the Joint Line track ballast generally are not defensible to a reasonable degree of engineering certainty and have little established relevance to the matter involved in this proceeding.

2. BNSF's study of the variation in IDV / IDV.2 calculated from particulate measurements of E-Samplers located side-by-side in the field and in the laboratory is flawed in many respects.

- a. The E-Sampler variability study performed by Mr. Sultana as outlined in his verified statement is based on comparisons performed using the IDV / IDV.2 concept, a concept created by SWA. As I wrote in my initial verified statement (at pp. 4-5): "The calculated IDV / IDV.2, although of questionable meaning and interpretation, is a 'derived' quantity from the analog output signal of the E-Samplers that apparently involves many computational steps.[] Moreover, the 'raw' data output from the E-Samplers itself has quantifiable uncertainties[] associated with it that apparently are neither considered by [BNSF] in their analyses nor are they carried along and properly computed (based on documents

produced for my review) as each step of the IDV / IDV.2 calculation is performed” (footnotes omitted). The output signal from the E-Samplers has uncertainties associated with it; these uncertainties have various sources, many of which I described in my opening verified statement. One way to conceptualize the E-Sampler output uncertainty is to think of the raw data output not in terms of discrete values (such as, “X”) but as values that have uncertainties associated with them (such as, “ $X \pm Y$ ” or “ $X \pm Y\%$ ”). Each time an arithmetic operation is performed on the E-Sampler output, these uncertainties can become larger. However, to the best of my knowledge, neither SWA nor Mr. Sultana have considered these uncertainties or incorporated them numerically into the calculation of the IDV / IDV.2. Since the IDV / IDV.2 is a calculated quantity from the E-Sampler output signal—the calculation of which does not account for the variability of the output signal itself (as just described)—using the IDV/ IDV.2 quantity to study E-Sampler to E-Sampler variability is fundamentally flawed because it does not quantitatively take account of all sources of uncertainty and hence variability that arises in taking the output signal and turning it into an IDV / IDV.2 value. Also, as I emphasized in my initial verified statement (at pp. 9-15), no evidence has been produced for my review that any of the E-Sampler outputs are producing accurate results because BNSF has not and apparently does not intend to calibrate the raw E-Sampler output data by using accepted reference methods such as the gravimetric analysis of filter samples.

- b. In its 2009 Reply, BNSF states that it “collected data from thousands of trains to assist in formulating effective coal dust emission standards.”² However, Mr. Sultana acknowledges in his opening verified statement that in studying the “variation” in the E-Samplers used at MP90.7, BNSF “had nearly 400 data points showing simultaneous measurements from two e-samplers in the side-by-side

² “BNSF Railway Company’s Reply to Arkansas Electric Cooperative Corporation’s Petition for a Declaratory Order,” p. 5, October 21, 2009.

tests.”³ By “variation,” Mr. Sultana is referring to the different IDV / IDV.2 values calculated from the output of two E-Samplers placed side-by-side to attempt to measure particulate from the same source.⁴

- c. Mr. Sultana’s reference to “400 data points” in his verified statement is the first explicit reference I have seen that identifies the data BNSF used in its study of E-Sampler variability. BNSF produced in discovery in this matter an electronic spreadsheet (“Threshold Performance Standard 071001.xls”) that appears to be the overall data record for the “400 data points” referenced by Mr. Sultana.⁵ {

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- i. {

}⁶ Very few details describing this laboratory testing have been addressed by Mr. Sultana or Dr. Emmitt in their respective opening verified statements or material that BNSF has produced in discovery. This is problematic on a number of levels. At a laboratory level, SWA has made no reference to any third-party review or

³ “Verified Statement of Charles Sultana in Support of BNSF Railway Company’s Opening Evidence,” p. 7.

⁴ In the “Verified Statement of Charles Sultana in Support of BNSF Railway Company’s Opening Evidence,” p. 7., Mr. Sultana provides an example of what he means by “variation,” namely, “one e-sampler unit might read 100 dust units while another e-sampler at its side might read 125 dust units from the same dust source.”

⁵ Reference the BNSF letter dated March 2, 2010, (sent by overnight courier) that states: “As requested in an inquiry from Mr. Kolesar, BNSF_COALDUST_0081614 through BNSF_COALDUST_0081615 include the data provided by BNSF to certain Six Sigma consultants in 2008.” I was informed that Coal Shippers did not receive this spreadsheet until March 3, 2010, more than ten weeks after the date of Coal Shippers’ requests and only thirteen days prior to the due date for opening evidence.

⁶ {

} that BNSF also apparently provided to the Coal Shippers for the first time on March 3, 2010.

audit of their test procedures. SWA has made no reference to any standardized methods⁷ that the scientific testing community in general relies upon to address and quantify issues involving testing precision, bias, inter-laboratory variation in method and procedures, etc. SWA has offered no evidence to support that their test methods have been reviewed by the relevant technical community. Perhaps on a more fundamental and practical level, the E-Samplers are intended to be used in the field at MP90.7 and potentially at other locations, not in a well-controlled laboratory environment. Any study of E-Sampler variability performed in the laboratory should also be performed, and performed more extensively, in the field under representative conditions of wind, weather and train operations.

ii. {

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It is difficult to conclude⁸ how these {

⁷ Examples of normative references that SWA could have considered include, but are not limited to, the following: ASTM E177, "Standard Practice for Use of the Terms Precision and Bias in ASTM Test Methods"; ASTM E178, "Practice for Dealing with Outlying Observations"; ASTM E456, "Terminology Relating to Quality and Statistics"; ASTM E691, "Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method"; and ASTM E2282, "Guide for Designing the Test Result of a Test Method."

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iii. {

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an engineering perspective, this remarkably small data set, especially when compared to representations made by both BNSF and SWA that thousands of trains have been monitored over a multiple year period, seems to be wholly inadequate to establish the basis for E-Sampler variability. {

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d. In my opening verified statement, I described numerous problems and incorrect inferences regarding BNSF's attempt to use E-Samplers to monitor and measure apparent particulate coal emissions from loaded railcars passing MP90.7.

However, if one assumes for the sake of argument that the E-Samplers at MP90.7 do monitor and accurately measure particulate coal emissions uniquely traceable to passing railcars and that furthermore these emissions without question constitute any and all coal particulates found in the ballast, the E-Sampler variability study performed by BNSF given the paucity of useable data would still be wholly inadequate and not defensible given reasonable engineering judgment.

3. Mr. Sultana's conclusions regarding the identification of factors that cause particulate coal emissions from trains in transit are not defensible to a reasonable degree of engineering certainty and even contradict causation studies previously performed by SWA.

a. In his opening verified statement, Mr. Sultana states that he performed "various analyses ... to determine whether it was feasible to isolate specific factors that caused dusting to occur on coal trains in transit."¹⁰ Mr. Sultana goes on to state that his analyses appeared to show that the relationships between "dusting events" and factors such as wind / train speed and wind direction were not linear. Mr. Sultana further states that he "concluded from these analyses that the causes of coal dust emissions at Milepost 90.7 were largely attributable to factors affecting the coal before the trains arrived at the TSM monitoring station" such as "the dryness of the coal by the time a train reached Milepost 90.7."¹¹

b. Mr. Sultana's primary conclusion regarding causation does not logically follow from his stated propositions. That Mr. Sultana found a nonlinear relationship

[emphasis mine]

¹⁰ "Verified Statement of Charles Sultana in Support of BNSF Railway Company's Opening Evidence," p. 3.

¹¹ "Verified Statement of Charles Sultana in Support of BNSF Railway Company's Opening Evidence," p. 6.

between such factors as wind speed / train speed / wind direction and the occurrence of dusting events does not mean that these factors are not among the principal causes of coal particulate emissions from the tops of loaded railcars in transit. The significance of Mr. Sultana's findings simply suggest that the correlations between certain likely causal factors and the occurrence of dusting events are not linear. This finding in no way supports Mr. Sultana's conclusion "that the causes of coal dust emissions at Milepost 90.7 were largely attributable to factors affecting the coal before the trains arrived at the TSM monitoring station."

- c. A review of the relevant technical literature clearly indicates that factors such as train speed (and therefore the resultant speed of the air over the top of loaded railcars when combined with local wind speed), train operation dynamics, weather and the properties of the coal itself are among the significant factors that determine if fugitive emissions will occur, when and to what extent. Some of the more relevant citations from the open literature include:

- i. "The key factor that contributes to the emission rate of coal dust from wagons is the speed of the air passing over the coal surface. This is influenced by the train speed and the ambient wind speed. Other factors that are also found to contribute include: coal properties such as dustiness, moisture content and particle size; frequency of train movements; vibration of the [railcars]; profile of the coal load; transport distance; exposure to wind; and precipitation." ^{12,13,14}

¹² Interim Report issued by Connell Hatch for Queensland Rail titled, *Environmental evaluation of fugitive coal dust emissions from coal trains, Goonyella, Blackwater and Moura Coal Rail Systems, Queensland Rail Limited*, report no. H-327578, January 31, 2008.

¹³ Draft Report issued by Connell Hatch for Queensland Rail titled, *Coal loss literature review, Coal loss management project, Queensland Rail Limited*, report no. H-327578-N00-CF00, January 11, 2008.

¹⁴ Report issued by Simtars (a business unit of the Queensland government Department of Mines and Energy) titled, *Gladstone Airborne Coal Dust Monitoring: Complete Report for QR National*, report no. oe101776f3, January 18, 2008.

- ii. Also consider the following citations all of which identify resultant wind speed over the top of loaded railcars as a significant causal factor: Ferreira and Vaz¹⁵; Leeder, Hutny and Price¹⁶; Noble, Sundberg and Bayard¹⁷; and Ferreira, Viegas and Sousa.¹⁸
- d. In addition, Mr. Sultana's conclusions regarding the identification of factors that cause particulate coal emissions from trains in transit appear to even contradict causation studies previously performed by SWA. For example, SWA stated in one of its studies¹⁹ of coal dust emissions for the Norfolk Southern Railroad: "We have identified and studied key environmental / operational stresses affecting coal dust emissions from in-transit coal cars: (1) wind speed over the coal surface; (2) coal surface temperature; (3) effects of precipitation; and (4) effects of operation such as slack action, acceleration, track switching, passing trains, movement through tunnels, etc."
- e. Similarly, Mr. Sultana references and attaches a study that he performed in 2006 concerning the effect of wind / train speed on apparent coal particulate emissions. Mr. Sultana does not reference a subsequent study performed by BNSF in 2007, the results of which BNSF shared with its coal shippers in 2007.²⁰ Among the findings made by BNSF in this 2007 study were:

i. { }

¹⁵ A.D. Ferreira and P.A. Vaz, *Wind tunnel study of coal dust release from train wagons*, Journal of Wind Engineering and Industrial Aerodynamics, v. 92, 2004, pp. 565-577.

¹⁶ R. Leeder, W. Hutny and J. Price, *Train transportation coal losses – a wind tunnel study*, Proceedings of the Iron and Steel Technology Conference, v. 1, 2007, pp. 129-138.

¹⁷ G. Noble, S.E. Sundberg and M. Bayard, *Coal particulate emissions from rail cars*, Proceedings from the Air Pollution Control Association Specialty Conference on Fugitive Dust Issues in the Coal Use Cycle, rep. no. CONF-8304206, April 1983, pp. 82-92.

¹⁸ A.D. Ferreira, D.X. Viegas and A.C.M. Sousa, *Full-scale measurements for evaluation of coal dust release from train wagons with two different shelter covers*, Journal of Wind Engineering and Industrial Aerodynamics, v. 91, 2003, pp. 1271-1283.

¹⁹ Report issued by Simpson Weather Associates titled, *Norfolk Southern Rail Emission Study*, December 30, 1993.

²⁰ Reference BNSF presentation "Train Speed and Wind Speed Comparison to Dusting Events," document no. BNSF_COALDUST_0079702-0079717, pp. 24, 25, 29.

ii. { }

iii. {

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f. { } numerous other studies detailed in the technical literature, namely, that factors such as train speed, train operation dynamics, weather and the properties of the coal itself are among the significant factors that determine if fugitive emissions will occur, when and to what extent.

4. The conclusions presented by Dr. Tutumluer in his opening verified statement are based on work performed on only one sample of ballast from the PRB Joint Line and as such the conclusions stated with respect to the cause of the May 2005 derailments specifically and the performance of the Joint Line track ballast generally are not defensible to a reasonable degree of engineering certainty.

a. Dr. Tutumluer states that the purpose of his verified statement is “to describe for the Board my findings that coal dust has a pernicious effect upon railroad ballast.”²¹ However, this statement is only relevant to the current proceedings insofar as evidence exists that coal dust has a “pernicious effect” on the Joint Line ballast that then causes quantifiable detriment to railroad operations. Dr. Tutumluer’s entire analysis, as relevant to the performance of the Joint Line, is based on only one sample of ballast material (apparently not even the ballast itself but just coal dust) that was provided to Dr. Tutumluer by BNSF for analysis. As Dr. Tutumluer states: “In March 2007, BNSF provided four buckets of coal dust samples collected from Milepost 62.4 of the Joint Line.”²² Basing an entire study

²¹ “Verified Statement of Erol Tutumluer in Support of BNSF Railway Company’s Opening Evidence,” p. 1.

²² “Verified Statement of Erol Tutumluer in Support of BNSF Railway Company’s Opening Evidence,” p. 8.

of ballast fouling by coal particulates on the analytical results from one sample that Dr. Tutumluer did not even collect himself presents the same flawed approach that Mr. Sultana took in attempting to address the variability in IDV / IDV.2 calculated from side-by-side E-Samplers. Numerous questions exist as to why Dr. Tutumluer did not take additional samples, and why he did not excavate complete test pit samples (such as in the sleeper spaces between the ties) as opposed to just accepting coal dust collected by BNSF. Were any samples used as controls? Did he present a sampling plan to ensure that his selection of the one sample did not introduce variability or bias? These unanswered questions raise doubts as to whether Dr. Tutumluer's broadly stated conclusions can be stated with any reasonable degree of engineering certainty and furthermore any relevance to the performance of the Joint Line track structure.

- b. With respect to the cause(s) of the May 2005 derailments on the Joint Line, Dr. Tutumluer states: "The coal dust caused moisture to accumulate and caused the loss of strength of the track, resulting in the derailments, which threatened to interrupt the supply of coal to power plants."²³ However, Dr. Tutumluer references no technical literature, published or internal BNSF studies, or the analysis of any ballast samples at the point of derailment locations for the May 2005 incidents to support this conclusion. In addition, Dr. Tutumluer does not state this conclusion with any reference to reasonable engineering certainty. Dr. Tutumluer then appears to back away from this conclusion when on p. 11 of his verified statement he writes: "Both of the [May 2005] derailments *were suspected* to be attributable to coal dust fouling, where coal dust spilled over the ballasts and accumulated moisture, *allegedly* resulting in the loss of strength of the track" [emphasis mine].

- c. Dr. Tutumluer states that "coal dust is one of the worst fouling agents when compared to mineral filler produced from aggregate breakdown and the fine-

²³ "Verified Statement of Erol Tutumluer in Support of BNSF Railway Company's Opening Evidence," p. 2.

grained cohesive subgrade soils.”²⁴ However, considering some excerpts from the published technical literature provided below, some of which Dr. Tutumluer himself references in his papers on fouled ballast, Dr. Tutumluer offers no explanation for how he would reconcile his conclusion that coal dust is one of the worst fouling agents to the statements made below. It is also interesting to note that it appears that Dr. Tutumluer has not considered the multiple and various effects of train operation, such as the impact and frequency of heavy axle loads, on the performance of ballast that may perform quite well given less severe traffic even in the presence of certain particulate fouling agents. That the PRB Joint Line is likely one of the most aggressively utilized railways in North America with respect to the magnitude and frequency of axle loads apparently has not been considered in Dr. Tutumluer’s analysis.

- i. “Five main sources of ballast fouling materials are ballast breakdown, infiltration from ballast surface, tie wear, infiltration from underlying granular materials and subgrade infiltration.”²⁵
- ii. “Previous research indicate[s] that ballast fouling materials mainly come from ballast breakdown.”²⁶
- iii. “[Ballast] materials which tend to create fines will fill the voids between the particles and could inhibit drainage. Some of the powdery fines of carbonate materials have a tendency to cement together and a clogging action could occur.”²⁷

²⁴ “Verified Statement of Erol Tutumluer in Support of BNSF Railway Company’s Opening Evidence,” p. 1.

²⁵ Selig, E.T. and Waters, J.M., *Track Geotechnology and Substructure Management*, first ed., published by Thomas Telford Services Ltd., London, 1994.

²⁶ Han, X. and Selig, E.T., “Effects of Fouling on Ballast Settlement,” *Proceedings of the Sixth International Heavy Haul Railway Conference*, April 1997, p. 261. Note that Han and Selig’s research at the University of Massachusetts Amherst was funded by the Association of American Railroads.

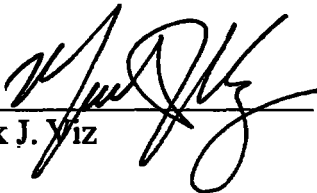
²⁷ AREMA 2007 Manual for Railway Engineering, vol. 1, chap. 1, sec. 2.10.3.e.

- iv. “Track loading patterns and traffic density, weight of the rail section, grades, the cross section of the ballast section, the sub-ballast and the roadbed interaction together with climatic conditions are major considerations in the performance of the ballast materials.”²⁸

²⁸ AREMA 2007 Manual for Railway Engineering, vol. 1, chap. 1, sec. 2.10.3.h.

VERIFICATION

I, Mark J. Viz, Ph.D., P.E., verify under penalty of perjury that I have read the foregoing Verified Statement and know the contents thereof; and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Mark J. Viz

Executed on: April 29th, 2010

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

FINANCE DOCKET NO. 35305

**ARKANSAS ELECTRIC COOPERATIVE CORPORATION --
PETITION FOR DECLATORY ORDER**

**Reply
Verified Statement**

Of

**Thomas D. Crowley
President
L.E. Peabody & Associates, Inc.**

On behalf of

**Western Coal Traffic League
And Concerned Captive Coal Shippers**

Date: April 30, 2010

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| II. SUMMARY AND FINDINGS | 2 |
| III. COAL CONTRIBUTION ANALYSIS | 4 |
| IV. BNSF AND UP COAL SERVICE FOR COAL SINCE 2005 | 8 |

LIST OF EXHIBITS

| <u>EXHIBIT NO.</u> (1) | <u>EXHIBIT DESCRIPTION</u> (2) |
|----------------------------------|---|
| __(TDC-4) ¹ | Graph of BNSF/UP Coal Revenues and Contribution – 2005 to 2008 |

¹ Exhibit No_(TDC-1) through Exhibit No_(TDC-3) were included with my Opening Verified Statement in this proceeding filed on March 16, 2010.

I. INTRODUCTION

My name is Thomas D. Crowley. I submitted a Verified Statement in this proceeding on March 16, 2010 on behalf of the Western Coal Traffic League and the Concerned Captive Coal Shippers ("Coal Shippers"). My qualifications are set forth in my earlier Verified Statement.

The BNSF Railway Company ("BNSF") submitted its Opening Evidence on March 16, 2010. BNSF states that coal dust is increasing costs on the rail lines of the Orin Subdivision² in the Powder River Basin ("PRB") and "...such extraordinary maintenance of way activities are intrusive and disrupt train operations" which "...effectively consumes capacity on the railroad."³

I have been requested by Coal Shippers to review and analyze: 1) the feasibility of BNSF continuing to address coal dust on the Orin Subdivision in the PRB through traditional maintenance techniques; and 2) the impact of maintenance activities conducted by BNSF and Union Pacific Railroad Company ("UP") subsequent to the two significant derailments in May 2005 on service for PRB coal traffic.

My testimony is organized below under the following topical headings:

- II. Summary and Findings
- III. Feasibility of Traditional Maintenance Techniques
- IV. BNSF and UP Service for Coal Since 2005

² The Orin Subdivision includes the rail lines between Donkey Creek, Wyoming (milepost 0) to Bridger Junction, Wyoming (milepost 127).

³ BNSF's Counsel's Summary of Evidence and Legal Argument, page 13.

II. SUMMARY AND FINDINGS

In its Opening Evidence, BNSF claims that it cannot continue to properly maintain the coal lines in the PRB through traditional methods. BNSF's solution to the maintenance problems it has raised is to force shippers to reduce the coal dust from the trains. I do not agree with BNSF's claims that it cannot maintain the coal lines with traditional methods or with BNSF's solution to the perceived problem.

After a review of BNSF's Opening Evidence as well as other publicly available data, I conclude that BNSF and UP currently receive sufficient revenues from coal shippers to maintain the rail lines in the PRB, even at the maintenance levels suggested by BNSF's witnesses in this proceeding. In addition, while BNSF has asserted that increased maintenance due to coal dust has caused trains to slow and has reduced rail capacity, several operating statistics indicate that BNSF and UP coal service has steadily improved since the 2005 derailments.

My specific observations and conclusions, as discussed in more detail in the remaining sections of this Verified Statement, are as follows:

1. Increased traffic levels, including the growth in PRB coal traffic, will normally cause increased costs related to maintenance-of-way. However, increased traffic levels also create growth in revenues which can be utilized to pay for the increased maintenance costs as well as any additional capital costs for increasing capacity on the rail lines.
2. In 2005, BNSF and UP's combined revenue for coal equaled \$5.18 billion. By 2008, the combined coal revenues for the BNSF and UP equaled \$7.96 billion, an increase of \$2.78 billion;
3. Between 2005 and 2008, the BNSF and UP's combined variable costs to handle its coal traffic increased from \$3.67 billion to \$5.78 billion, an increase in variable costs of \$2.11 billion. These increased variable costs include those "extraordinary costs" that the BNSF and UP incurred to maintain the coal routes, including the rail lines in the PRB;

4. BNSF and UP's contribution from the coal it transports, as defined by revenues less variable costs, increased from \$1.52 billion in 2005 to \$2.18 billion in 2008, an increase of \$0.67 billion.
5. BNSF and UP have not experienced any significant derailments on the PRB Joint Line since the derailments in 2005. Even with slow orders and delays associated with maintenance, BNSF and UP have experienced increasing average train speeds for coal service. Between 4Q06 and 4Q09, BNSF's average speeds for coal trains increased from 18.1 miles per hour ("mph") to 23.5 mph, an increase of 30 percent. For UP, the average speeds for coal trains between 4Q06 and 4Q09 increased from 20.9 mph to 26.0 mph, an increase of 24 percent.
6. The UP has also decreased the average dwell times at its major coal yard in North Platte. Between 2005 and 2009, the average dwell time at UP's North Platte East Yard decreased 8 percent, from 28.4 hours to 26.1 hours. For UP's North Platte West Yard, the average dwell time between 2005 and 2009 decreased from 33.9 hours to 28.9 hours, a decrease of 15 percent. These reductions in dwell times are another factor that allows UP to transport more goods without adding capacity.

The details supporting my conclusions are discussed in the remainder of this Reply Verified Statement.

III. FEASIBILITY OF TRADITIONAL MAINTENANCE TECHNIQUES

The maintenance issues discussed by BNSF (and UP) are not unique to the PRB. Increased traffic levels, including the growth in PRB coal traffic, will cause increased variable costs related to maintenance-of-way. The increased need for maintenance can also consume the capacity of a rail line. At this level of the discussion, I do not disagree with BNSF. However, where I disagree with BNSF is in the capability of viable, traditional maintenance-of-way techniques to maintain the coal lines and the railroads' ability to cover the increased costs.

As noted in the Verified Statement and Reply Verified Statement of Coal Shippers' witness Richard McDonald, the PRB rail lines can be properly maintained with traditional techniques. BNSF has sufficient resources to provide for the required maintenance.

From a financial perspective, increased traffic levels also create increased revenues which can be utilized to pay for the increased maintenance costs as well as any additional capital costs associated with increasing capacity on the rail lines. The BNSF's claimed difficulties with maintenance and capacity issues ignore the fact that BNSF (and UP) both receive vast revenues for shipping coal over the PRB rail lines. The revenues received by the railroads cover the variable maintenance and incremental road property investment associated with transporting the traffic as well as providing substantial contributions to each railroad's fixed costs and profits. With this contribution, it is feasible for BNSF and UP to maintain the rail lines using traditional techniques and add capacity where needed.

BNSF states that because of coal dust from railcars, it is now required to perform extraordinary measures to properly maintain the coal lines in the PRB. BNSF's Mr. Fox acknowledges that "[s]ince the 1970's, BNSF and its predecessor Burlington Northern has had

to deal with coal dust accumulations on the right of way.”⁴ The issue that makes the PRB unique is not that coal dust is accumulating but rather, the amount of coal dust. The amount of coal dust is not unexpected because as BNSF recognizes the “PRB rail lines are among the highest volume rail lines in the world.”⁵ The volume that BNSF and UP transport over the PRB rail lines necessitates higher levels of maintenance for all items, not solely the type of maintenance (e.g., undercutting ballast) that is related to coal dust. BNSF asserts that traditional maintenance-of-way techniques are not sufficient to properly maintain the PRB rail lines.

BNSF’s witness Craig Sloggett, details some of the “extraordinary maintenance efforts” that BNSF performs on the PRB lines.⁶ The efforts described in his Verified Statement include:

1. More frequent undercutting (page 7);
2. Shoulder ballast cleaning (page 8); and
3. Vacuum trucks to pick up coal dust (page 8).

In order to evaluate the funds available to BNSF and UP to pay for maintenance-of-way costs and additional capital expenditures to increase capacity, I have evaluated the contribution that BNSF and UP receive from coal. My analysis summarizes the coal revenues reported by the railroads to the STB for 2005 through 2008.⁷ I also calculated the aggregate variable costs for the coal shipped by BNSF and UP for the same time period. The average service units for western coal (net load per car, cars per train, etc.) were determined from the STB’s public use waybill sample. Variable costs for 2005 through 2008 for the BNSF and UP were calculated

⁴ V.S. of Gregory C. Fox, page 2. It is worth noting that Mr. Fox, at page 6 acknowledged that BNSF “...has never claimed that coal dust was the sole cause of the derailments...” in May 2005.

⁵ BNSF Opening Evidence, Counsel’s Summary of Evidence and Legal Argument, page 9.

⁶ V.S. of Sloggett, page 6.

⁷ While BNSF and UP originate coal from regions other than the PRB, the vast majority of the coal handled by these two railroads originates in the PRB.

using the STB's URCS unit costs.⁸ The contribution in the analysis below is calculated after the railroads have covered the costs to perform the maintenance activities and paid for the incremental road property investment required for the high volume of coal, even if extraordinary efforts were needed due to coal dust.

Table 1 below summarizes the results of my analysis.

| Table 1 Comparison of BNSF and UP Revenues and Contribution for Coal -- 2005 to 2008 | | | |
|---|-----------------|--------------|------------------------|
| <u>Aggregate Amount for Coal (million)</u> | | | |
| Variable | | | |
| <u>Year</u> | <u>Revenues</u> | <u>Costs</u> | <u>Contribution 1/</u> |
| (1) | (2) | (3) | (4) |
| 2005 | \$5,183 | \$3,668 | \$1,515 |
| 2006 | \$6,066 | \$4,094 | \$1,972 |
| 2007 | \$6,557 | \$4,691 | \$1,866 |
| 2008 | \$7,964 | \$5,780 | \$2,184 |

1/ Column (2) minus Column (3).

⁸ The STB and railroads have recognized that the STB's system average Phase III costing procedure that is utilized to determine the jurisdictional threshold in maximum rate cases overstates the railroads actual movement specific variable costs. To recognize this difference, I have applied the relationship of the movement specific costs to Phase III system average costs for this contribution analysis. The relationship I use is based on the movement specific costs developed in the last two STB proceedings (TMPA and WPL) before the STB switched to system average costing. A comparison of the movement-specific variable costs for shipper-owned railcars in the STB's May 9, 2002 decision in WPL to Phase III system average costs indicates that movement-specific costs are 83.6% of system-average costs. A comparison of the movement-specific variable costs for railroad-owned railcars in the STB's March 21, 2003 decision in TMPA to Phase III system average costs indicates that movement-specific costs are 82.8% of system-average costs. In my analysis of the 2005-2008 variable costs for BNSF and UP coal traffic, I have applied the ratio of 83.6% to coal traffic moving in shipper-owned equipment and 82.8% to coal traffic moving in railroad-owned equipment.

The Table 1 results above are shown graphically in Exhibit__(TDC-4) to this Reply Verified Statement.⁹

As shown in Column (2) of Table 1 above, in 2005 BNSF and UP's combined revenue for coal equaled \$5.18 billion and has increased in each subsequent year. By 2008, the combined coal revenues for the BNSF and UP equaled \$7.96 billion, an increase of \$2.78 billion.

As shown in Column (3) of Table 1 above, in 2005 BNSF and UP's aggregate variable costs to handle the coal traffic equaled \$3.67 billion. By 2008, the BNSF and UP's combined variable costs to handle their coal traffic had increased to \$5.78 billion, an increase in variable costs of \$2.11 billion. These increased variable costs include those "extraordinary costs" that the BNSF and UP have incurred to maintain their principal coal routes, including the PRB Joint Line and the Black Hills Subdivision.

BNSF and UP's contribution from the coal it transports as shown in Column (4) of Table 1 above increased from \$1.52 billion in 2005 to \$2.18 billion in 2008, an increase of \$670 million.

⁹ Exhibit__(TDC-1) through Exhibit__(TDC-3) are included in my Opening Verified Statement in this proceeding.

IV. BNSF AND UP COAL SERVICE SINCE 2005

There is no argument that the BNSF and UP exhibited severe service problems after the two PRB derailments in May 2005. All coal trains were slowed and empty coal trains were required to wait longer in yards due in large part to extraordinary catch-up maintenance resulting from deferred maintenance prior to 2005. In this current proceeding, BNSF and UP continue this theme. Specifically, BNSF and UP portray the current coal dust issue as something that is causing service problems. Mr. Sloggett stated that in order to perform the maintenance work required by coal dust "...BNSF must slow or stop train traffic on the railroad line on or near where this work is being performed to ensure the safety of our workers and to ensure the safe passage of trains as we work on the track structure itself."¹⁰ BNSF argues that "[m]aintenance effectively consumes capacity on the railroad..."¹¹

The BNSF is correct that maintenance causes slow orders and in some instances the stoppage of trains. BNSF is also correct that maintenance outages reduce the effective capacity of a rail line segment. However, once again, BNSF attempts to misdirect the reader away from the real point of this issue. All maintenance, not just the maintenance caused by coal dust, potentially creates slow orders and in some instances the stoppage of trains. In addition, the BNSF and UP respond to capacity issues in the PRB (and elsewhere on their systems) to account for increases in volumes as well as increased maintenance activities.

BNSF and UP have not shown that the maintenance activities necessary to handle coal dust have harmed the level of their coal operations. Actually, recent experience shows the opposite. Since 2005, average train speeds have increased. BNSF and UP provided average train speeds for coal train to the STB's Rail Energy Transportation Advisory Committee

¹⁰ V.S. of Sloggett, page 9

¹¹ BNSF Opening Evidence, Counsel's Summary of Evidence and Legal Argument, page13.

(“RETAC”) which demonstrated an increase in speed. Between 4Q06 and 4Q09, BNSF’s average train speed for coal increased from 18.1 mph to 23.5 mph, an increase of 30 percent. Over the same time period, UP’s average train speed for coal increased from 20.9 mph to 26.0 mph, an increase of 24 percent.¹²

Another efficiency measure for coal trains is yard dwell time. BNSF does not provide any publicly available data for its major coal yards. However, UP does provide dwell time data for its major yards, including its primary coal yard at North Platte, Nebraska. In 2005, the average dwell time for all trains moving through these yards equaled 28.4 hours for the North Platte East Yard and 33.9 hours for the North Platte West Yard. In 2006, the average dwell times were reduced to 26.7 hours (North Platte East Yard) and 32.9 hours (North Platte West Yard). Since that time, the average dwell time has further declined resulting in the 2009 average dwell time of 26.1 hours (North Platte East Yard) and 28.9 hours (North Platte West Yard).


In summary, between 2005 and 2009, the average dwell time at UP’s North Platte East Yard has decreased 8 percent, from 28.4 hours to 26.1 hours. For UP’s North Platte West Yard, the average dwell time between 2005 and 2009 decreased from 33.9 hours to 28.9 hours, a decrease of 15 percent.

¹² BNSF did not provide data for 2005. However, UP data shows that between 4Q05 and 4Q09, UP average train speeds for coal trains increased by 28 percent.

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, THOMAS D. CROWLEY, verify under penalty of perjury that I have read the foregoing Verified Statement of Thomas D. Crowley, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.


Thomas D. Crowley

Sworn to and subscribed
before me this 30th day of April, 2010

Diane R. Kavounis
Diane R. Kavounis
Notary Public for the State of Virginia

My Commission Expires: November 30, 2012
Registration Number: 7160645

Graph of BNSF/UP Coal Revenues and Contribution - 2005 to 2008

